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CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB,
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0* FILE FSTA
0* FILE KOSMET
0* FILE NTIS

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0* FILE PHARMAML
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=> s 15 and target?  
L6 8 L5 AND TARGET?

=> d 16 bib ab 1-8

L6 ANSWER 1 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 2005:985203 CAPLUS <<LOGINID::20060522>>  
DN 143:260354  
TI Method and composition using a weakly basic anticancer compound and urease  
for inhibiting cancer cell growth  
IN Segal, Donald; McElroy, Jerry; Chao, Heman; Wong, Wah Y.; Docherty, John;  
Dickstein, Jodi  
PA Helix Biopharma Corporation, Can.  
SO U.S. Pat. Appl. Publ., 30 pp., Cont.-in-part of U.S. Ser. No. 621,833.  
CODEN: USXXCO  
DT Patent  
LA English  
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2005196391	A1	20050908	US 2005-46271	20050127
PRAI US 2004115186	A1	20040617	US 2003-621833	20030716
AB US 2003-397244P	P	20020718		
AB US 2003-621833	A2	20030716		
AB Improvements in methods of treating cancer with weakly basic anticancer compds. are provided. In one aspect, the invention provides an improvement in a method of treating cancer cells whose extracellular environment contains 1-8 mM urea, by exposing the cells to a weakly basic				

anticancer compd. which is effective in inhibiting the growth of the  
cells. The improvement includes (a) exposing the cells to a urease enzyme  
compn. and, (b) by step (a), reducing the amt. of anticancer compd.  
required to produce a given extent of inhibition in the growth of the  
cells when the cells are exposed to the anticancer agent. Methods of  
potentiating the specific therapeutic activity of a weakly basic  
anticancer compd. in the treatment of a given mammalian cancer which is  
responsive to the compd. are provided as are pharmaceutical compns. for  
use in i.v. administration to a subject are also provided.

L6 ANSWER 2 OF 8 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 1997:335117 CAPLUS <<LOGINID::20060522>>  
DN 126:301778  
TI \*\*\*Urease\*\*\* inhibitors as \*\*\*chemotherapeutic\*\*\* agents for  
mycobacteria  
IN Horwitz, Marcus A.; Clemens, Daniel L.; Lee, Bai-Yu  
PA The Regents of the University of California, USA; Horwitz, Marcus A.;  
Clemens, Daniel L.; Lee, Bai-Yu  
SO PCT Int. Appl., 51 pp.  
CODEN: PIXXD2

DT Patent  
LA English  
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9712057	A1	19970403	WO 1996-US15303	19960924
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KR, KP, KZ, LK, LU, LT, LV, LV, MD, MG, MK, MN, MX, NO, NZ, PL, PT, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, AU 9671657	A1	19970417	AU 1996-71657	19960924
PRAI US 1995-4270P	P	19950925		
AB A method is claimed for treating mammals which are infected with a mycobacterium wherein the mycobacterium produces a urease. The method involves treating the mammal with an anti-urease agent to reduce the prodn. of urease by the mycobacterium and thereby reduce biol. activity of the mycobacterium. Anti-urease agents include urease inhibitors and oligodeoxynucleotides anti-sense to the urease gene or mRNA derived therefrom which prevents expression by the mycobacterium. Methods for screening compds. for potential use as anti-mycobacterium agents are also disclosed as in the identity of urease produced by M. tuberculosis. The urease provides a ***target*** to which anti-bacterial agents can be directed.				

L6 ANSWER 3 OF 8 DGENE COPYRIGHT 2006 The Thomson Corp on STN  
AN AAW14495 Protein DGENE  
TI Treating mammals infected with Mycobacteria - by inhibiting proliferation  
of mycobacteria using urease inhibitor  
IN Clemens D L; Horwitz M A; Lee B  
(REGC) UNIV CALIFORNIA.  
PA WO 9712057 A1 19970403 53  
PI WO 1996-US15303 19960924  
PRAI US 1995-4270 19950925

DT Patent  
 LA English  
 OS 1997-212916 [19]  
 CR N-PSDB: AAT63512  
 DESC Urease accessory molecule F.  
 AB Urease subunits A, B and C (AAW14492-94) and urease accessory molecules F and G (AAW14495-96) are respectively encoded by DNA sequences (AAT63509-13) from the urease gene cluster (AAT63514) of Mycobacterium tuberculosis strain Erdman. The urease (see also AAW14497) is important to pathogenesis and is therefore a suitable \*\*\*target\*\*\* for the design of anti-mycobacterial agents. Methods are provided for reducing proliferation of mycobacteria by exposure to anti-\*\*\*urease\*\*\* agents (e.g. antisense oligonucleotide and \*\*\*chemotherapeutics\*\*\* ) and for screening potential anti-mycobacterial agents utilising cell cultures infected with urease-producing mycobacteria.

L6 ANSWER 4 OF 8 DGENE COPYRIGHT 2006 The Thomson Corp on STN  
 AN AAW14494 Protein DGENE  
 TI Treating mammals infected with Mycobacteria - by inhibiting proliferation of mycobacteria using urease inhibitor  
 IN Clemens D L; Horwitz M A; Lee B  
 PA (REGC) UNIV CALIFORNIA.  
 PI WO 9712057 AI 19970403  
 AI WO 1996-US15303 19960924  
 PRAI US 1995-4270 19950925  
 DT Patent  
 LA English  
 OS 1997-212916 [19]  
 CR N-PSDB: AAT63511  
 DESC Urease subunit C.  
 AB Urease subunits A, B and C (AAW14492-94) and urease accessory molecules F and G (AAW14495-96) are respectively encoded by DNA sequences (AAT63509-13) from the urease gene cluster (AAT63514) of Mycobacterium tuberculosis strain Erdman. The urease (see also AAW14497) is important to pathogenesis and is therefore a suitable \*\*\*target\*\*\* for the design of anti-mycobacterial agents. Methods are provided for reducing proliferation of mycobacteria by exposure to anti-\*\*\*urease\*\*\* agents (e.g. antisense oligonucleotide and \*\*\*chemotherapeutics\*\*\* ) and for screening potential anti-mycobacterial agents utilising cell cultures infected with urease-producing mycobacteria.

L6 ANSWER 5 OF 8 DGENE COPYRIGHT 2006 The Thomson Corp on STN  
 AN AAW14493 Protein DGENE  
 TI Treating mammals infected with Mycobacteria - by inhibiting proliferation of mycobacteria using urease inhibitor  
 IN Clemens D L; Horwitz M A; Lee B  
 PA (REGC) UNIV CALIFORNIA.  
 PI WO 9712057 AI 19970403  
 AI WO 1996-US15303 19960924  
 PRAI US 1995-4270 19950925  
 DT Patent  
 LA English  
 OS 1997-212916 [19]  
 CR N-PSDB: AAT63510  
 DESC Urease subunit B.  
 AB Urease subunits A, B and C (AAW14492-94) and urease accessory molecules F and G (AAW14495-96) are respectively encoded by DNA sequences (AAT63509-13) from the urease gene cluster (AAT63514) of Mycobacterium tuberculosis strain Erdman. The urease (see also AAW14497) is important to pathogenesis and is therefore a suitable \*\*\*target\*\*\* for the design of anti-mycobacterial agents. Methods are provided for reducing proliferation of mycobacteria by exposure to anti-\*\*\*urease\*\*\* agents (e.g. antisense oligonucleotide and \*\*\*chemotherapeutics\*\*\* ) and for screening potential anti-mycobacterial agents utilising cell cultures infected with urease-producing mycobacteria.

L6 ANSWER 6 OF 8 DGENE COPYRIGHT 2006 The Thomson Corp on STN  
 AN AAW14492 Protein DGENE  
 TI Treating mammals infected with Mycobacteria - by inhibiting proliferation of mycobacteria using urease inhibitor  
 IN Clemens D L; Horwitz M A; Lee B  
 PA (REGC) UNIV CALIFORNIA.  
 PI WO 9712057 AI 19970403  
 AI WO 1996-US15303 19960924  
 PRAI US 1995-4270 19950925  
 DT Patent  
 LA English  
 OS 1997-212916 [19]  
 CR N-PSDB: AAT63509  
 DESC Urease subunit A.  
 AB Urease subunits A, B and C (AAW14492-94) and urease accessory molecules F and G (AAW14495-96) are respectively encoded by DNA sequences (AAT63509-13) from the urease gene cluster (AAT63514) of Mycobacterium tuberculosis strain Erdman. The urease (see also AAW14497) is important to pathogenesis and is therefore a suitable \*\*\*target\*\*\* for the design of anti-mycobacterial agents. Methods are provided for reducing proliferation of mycobacteria by exposure to anti-\*\*\*urease\*\*\* agents (e.g. antisense oligonucleotide and \*\*\*chemotherapeutics\*\*\* ) and for screening potential anti-mycobacterial agents utilising cell cultures infected with urease-producing mycobacteria.

L6 ANSWER 7 OF 8 DGENE COPYRIGHT 2006 The Thomson Corp on STN  
 AN AAW14497 Protein DGENE  
 TI Treating mammals infected with Mycobacteria - by inhibiting proliferation of mycobacteria using urease inhibitor  
 IN Clemens D L; Horwitz M A; Lee B  
 PA (REGC) UNIV CALIFORNIA.  
 PI WO 9712057 AI 19970403  
 AI WO 1996-US15303 19960924  
 PRAI US 1995-4270 19950925  
 DT Patent  
 LA English  
 OS 1997-212916 [19]  
 CR N-PSDB: AAT63514  
 DESC Urease protein.  
 AB The urease (AAW14497) of Mycobacterium tuberculosis strain Erdman comprises urease subunits A, B and C (see also AAW14492-94) and urease accessory molecules F and G (see also AAW14495-96) and is encoded by a urease gene complex (AAT63514). The urease is important to pathogenesis and is therefore a suitable \*\*\*target\*\*\* for the design of anti-mycobacterial agents. Methods are provided for reducing proliferation of mycobacteria by exposure to anti-\*\*\*urease\*\*\* agents (e.g. antisense oligonucleotide and \*\*\*chemotherapeutics\*\*\* ) and for screening potential anti-mycobacterial agents utilising cell cultures infected with urease-producing mycobacteria.

infected with urease-producing mycobacteria.

L6 ANSWER 8 OF 8 DGENE COPYRIGHT 2006 The Thomson Corp on STN  
AN AAW14496 Protein DGENE  
TI Treating mammals infected with Mycobacteria - by inhibiting proliferation  
of mycobacteria using urease inhibitor  
IN Clemens D Lj Horvitz M A; Lee B  
PA (REGC) UNIV CALIFORNIA. 53  
PI WO 9712057 A1 19970403  
AI WO 1996-US15303 19960924  
PRAI US 1995-4270 19950925  
DT Patent  
LA English  
OS 1997-212916 [19]  
CR N-PSDB: AAT63513  
DESC Urease accessory molecule G.  
AB Urease subunits A, B and C (AAW14492-94) and urease accessory molecules F  
and G (AAW14495-96) are respectively encoded by DNA sequences  
(AAT63509-13) from the urease gene cluster (AAT63514) of Mycobacterium  
tuberculosis strain Erdman. The urease (see also AAW14497) is important  
to pathogenesis and is therefore a suitable \*\*\*target\*\*\* for the  
design of anti-mycobacterial agents. Methods are provided for reducing  
proliferation of mycobacteria by exposure to anti- \*\*\*urease\*\*\* agents  
(e.g. antisense oligonucleotide and \*\*\*chemotherapeutics\*\*\* ) and for  
screening potential anti-mycobacterial agents utilising cell cultures  
infected with urease-producing mycobacteria.

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CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DISSABS, DRUGB,  
DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 12:43:38 ON 22 MAY 2006

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L7 QUE (CHEMOTHERAP? (10A) TARGET?) AND UREASE

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L8 QUE (TARGETING (W) MOIETY) AND UREASE

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=> s 18  
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=> d 110 bib ab 1-7

L10 ANSWER 1 OF 7 IFIPAT COPYRIGHT 2006 IFI on STN  
 AN 10957658 IFIPAT:IFIUDR:IFICDB <<LOGINID:20060522>>  
 TI METHOD AND COMPOSITION FOR INHIBITING CANCER CELL GROWTH  
 INF Chao; Heman, Aurora, CA  
 Dickstein; Jodi, Markham, CA  
 Docherty; John, Richmond Hill, CA  
 McElroy; Jerry, Richmond Hill, CA  
 Segal; Donald, Stouffville, CA  
 Wong; Wah Y., Edmonton, CAN

IN Chao Heman (CA); Dickstein Jodi (CA); Docherty John (CA); McElroy Jerry (CA); Segal Donald (CA); Wong Wah Y (CA)  
 PAF Helix BioPharma Corp  
 AG PERKINS COIE LLP, P.O. BOX 2168, MENLO PARK, CA, 94026, US  
 PI US 2005196391 A1 20050908  
 AI US 2003-46271 20050127

RLI US 2003-621833 20030716 CONTINUATION-IN-PART PENDING  
 PRAI US 2002-397244P 20020718 (Provisional)  
 FI US 2005196391 20050908  
 DT Utility; Patent Application - First Publication  
 FS CHEMICAL APPLICATION

PARN This application is a continuation-in-part of U.S. patent application Ser. No. 10,621,833, filed Jul. 16, 2003, U.S. Publication No. 2004/015186 A1, published Jun. 17, 2004, which claims priority to and benefit of U.S. Provisional Patent Application No. 60/397,244, filed Jul. 18, 2002. Both of these applications are incorporated herein by reference in their entirety for all purposes.  
 22

CI/MN 13 Figure(s).  
 GI FIGS. 1A-1D illustrate the steps of the \*\*\*urease\*\*\* reaction. Urea is cleaved by \*\*\*urease\*\*\* to produce one molecule of ammonia and one of carbonate (A). Carbonate spontaneously decomposes to ammonia and carbonic acid (B). The carbonic acid equilibrates in water (C), as do the two molecules of ammonia, which become protonated to yield ammonium and hydroxide ions (D). The reaction results in a rise in the pH of the reaction environment.  
 FIG. 2 shows the mass spectrometry profile of a crude sample containing \*\*\*urease\*\*\* prepared in accordance with one embodiment of the invention.

FIG. 3 illustrates the affinity purification profiles of \*\*\*urease\*\*\* during various stages of the purification process, in accordance with another embodiment of the invention.  
 FIG. 4 illustrates the purification of E-coil-alpha hEGFR IgG conjugate by a protein-G column prepared according to one embodiment of the invention.  
 FIG. 5 shows the antibody titer of purified E-coil-alpha hEGFR IgG conjugate prepared according to one embodiment of the invention as determined by immobilized K-coil ELISA.  
 FIG. 6A is a graph showing a dose-response curve of urea on the viability of A549 (upward-triangle-filled) and MDA-MB-231 (small-circle) cells. Cells were incubated in 0-40 mM urea, treated with 2 U/ml of \*\*\*urease\*\*\* and incubated at 37 degrees C. for 2 hours as more fully described in Example 7. Viability of the treated cells began to drop as the urea level increased. Urea alone has no effects on A549 (Delta) and MDA-MB-231 (small-circle) controls.  
 FIG. 6B is a graph showing a dose-response curve of \*\*\*urease\*\*\* on the viability of A549 (upward-triangle-filled) and MDA-MB-231 (small-circle) cells. Cells were incubated in 20 mM urea and treated with 2 U/ml of \*\*\*urease\*\*\* for 2 hours as described in Example 7. A549 (upward-triangle-filled) were more susceptible to \*\*\*urease\*\*\* than MDA-MB-231 (small-circle) cells.  
 FIG. 6C is a graph showing total ammonium ion as a function of urea treatment in pooled incubation buffer collected from A549 cells treated with \*\*\*urease\*\*\* as described for FIG. 6A and as more fully described in Example 8. Hydrolysis of urea by \*\*\*urease\*\*\* (\*) caused an increase in ammonium content as compared to the control (.squ.). Values are means+S.D. of 4 replicates from 3 experiments.  
 FIG. 6D is a graph of pH as a function of urea treatment in pooled incubation buffer collected from A549 cells treated with \*\*\*urease\*\*\* as described for FIG. 6A and as more fully described in Example 8. Hydrolysis of urea by \*\*\*urease\*\*\* (\*) caused an increase in pH as compared to the control (.squ.). Values are means+S.D. of 4 replicates from 3 experiments.  
 FIGS. 7A-7F are graphs depicting the protective effects of acetohydroxamic acid (AHA) on \*\*\*urease\*\*\* cytotoxicity as described in Example 9. (A) A549 cells (upward-triangle-filled) and (B) MDA-MB-231 cells (small-circle) treated with 2 U/ml of \*\*\*urease\*\*\* were protected from the cytotoxic effects by addition of acetohydroxamic acid to the incubation buffer. AHA alone at concentrations up to 6 mM was not toxic to both cell lines (no \*\*\*urease\*\*\* controls: Delta, A549; .xcirc., MDA-MB-231). Complete protection was observed at dose >= 2 mM. (C) AHA inhibited ammonium production by \*\*\*urease\*\*\* (\*), which corresponds to an increase in survival rate of both cell lines as shown in (A) and (B). Higher amount of AHA (6 mM) can reduce the ammonium level close to that of control (.squ.). Values are means+S.D. of 4 replicates from 3 experiments. (D) AHA inhibited ammonium production by \*\*\*urease\*\*\* at indicated urea concentrations; (E) A549 cells; or MDA-MB-231 cells incubated in the indicated amounts of urea and treated with 2 U/ml \*\*\*urease\*\*\* were protected from the cytotoxic effects of \*\*\*urease\*\*\* by addition of acetohydroxamic acid to the incubation buffer.  
 FIGS. 8A-8B are graphs which depict the growth inhibitor effects of \*\*\*urease\*\*\* on tumor cell line xenografts as described in Example 10. (A) \*\*\*urease\*\*\* inhibits the growth of established MCF-7 xenografts. The breast tumor stopped to grow after the second injection of high-dose of \*\*\*urease\*\*\* (10 U/injection, solid bars) on day 9 as compared to the controls (open bars). Time of intratumoral injections are indicated

by Delta below the x-axis. (B) effects of multiple low-dose (1 U/injection, hatched bars) and medium-dose (4 U/injection, solid bars) injections of \*\*\*urease\*\*\* on established A549 xenografts. Intratumoral injections were performed on days 5, 7, 9, 11 and 13 (Delta). Delay of tumor growth was observed from days 17 onwards as compared to the controls (open bars). Significance was determined using the two-tailed unpaired Student's t test: \*p<0.05 and \*\*p<0.005. FIGS. 9A-9B are graphs depicting the effects of \*\*\*urease\*\*\* on the cytotoxicity of weakly basic anticancer drugs as described in Example 11. (A) lung tumor A549 and (B) breast tumor MDA-MB-231 incubated in 0, 2 or 8 mM urea, were treated with 2 U/ml of \*\*\*urease\*\*\*, and either 50 mM of doxorubicin or 100 mM of vinblastine at pH 6.8 overnight. The antitumor efficacies of the two compounds were enhanced at the presence of \*\*\*urease\*\*\* (solid bars) and urea as compared to the control (open bars). The solid circle (small-circle) indicates the pH of ureasetreated group measured after treatment. Values are mean±S.D. of 4 replicates from 3 experiments.

FIGS. 10A-10B are graphs showing the effects of \*\*\*urease\*\*\* on the cytotoxicity of weakly basic anticancer drugs as described in Example 11. Lung tumor A549 (A) and breast tumor MDA-MB-231 (B) were incubated in urea and treated with DQ547 (2 U/ml), and either Fluorouracil (13.3 mM) or Mitoxantrone (5 mM) at pH 6.8 overnight. The enhanced anticancer effect (solid bar) of Mitoxantrone is only observed in MDA-MB-231 but not in A549 cells. DQ547 also enhances the anticancer effects of Fluorouracil in A549 but not in MDA-MB-231. The solid circle (small-circle) denotes the pH of DQ547 group measured after treatment. Values are mean±S.D. of 4 replicates from 3 different experiments.

OF 7 IFIPAT COPYRIGHT 2006 IFI on STN

AB Improvements in methods of treating cancer with weakly basic anti-cancer compounds are provided. In one aspect, the invention provides an improvement in a method of treating cancer cells whose extracellular environment contains 1-8 mM urea, by exposing the cells to a weakly basic anti-cancer compound which is effective in inhibiting the growth of the cells. The improvement includes (a) exposing the cells to a \*\*\*urease\*\*\* enzyme composition and, (b) by step (a), reducing the amount of anti-cancer compound required to produce a given extent of inhibition in the growth of the cells when the cells are exposed to the anti-cancer agent. Methods of potentiating the specific therapeutic activity of a weakly basic anti-cancer compound in the treatment of a given mammalian cancer which is responsive to the compound are provided as are pharmaceutical compositions for use in intravenous administration to a subject are also provided.

L10 ANSWER 2 OF 7 IFIPAT COPYRIGHT 2006 IFI on STN

AN 10607963 IFIPAT:IFIUDB:IFICDB <<LOGINID::20060522>>  
TI METHOD AND COMPOSITION FOR INHIBITING CANCER CELL GROWTH; A \*\*\*UREASE\*\*\* ENZYME, AND HAVING ASSOCIATED WITH IT A CHEMICAL ENTITY EFFECTIVE TO ENHANCE THE DELIVERY OF THE ENZYME TO CANCER CELLS

INF Chao; Heman, Aurora, CA  
Dickstein; Jodi, Markham, CA  
Docherty; John, Aurora, CA  
McElroy; Jerry, Richmond Hill, CA  
Segal; Don, Stouffville, CA  
Wong; Wah, Edmonton, CA  
IN Chao Heman (CA); Dickstein Jodi (CA); Docherty John (CA); McElroy Jerry (CA); Segal Don (CA); Wong Wah (CA)  
PAF Unassigned

PA Unassigned Or Assigned To Individual (68000)  
PPA Helix BioPharma Corp CA (Probable)  
AG PERKINS COIE LLP, P.O. BOX 2168, MENLO PARK, CA, 94026, US  
PI US 2004115186 AI 20040617  
AI US 2003-621833 20030716  
PRAI US 2002-397244P 20020718 (Provisional)  
FI US 2004115186 20040617  
DT Utility/ Patent Application - First Publication  
FS CHEMICAL

APPLICATION

PARN This application claims priority to and benefit of U.S. Provisional Patent Application Serial No. 60/397,244, filed Jul. 18, 2002, the disclosure of which is incorporated herein by reference in its entirety for all purposes.

CLMN 50  
GI 5 Figure(s).

FIGS. 1A-1D illustrate the steps of the \*\*\*urease\*\*\* reaction. Urea is cleaved by \*\*\*urease\*\*\* to produce one molecule of ammonia and one of carbamate (A). Carbamate spontaneously decomposes to ammonia and carbonic acid (B). The carbonic acid equilibrates in water (C), as do the two molecules of ammonia, which become protonated to yield ammonium and hydroxide ions (D). The reaction results in a rise in the pH of the reaction environment;

FIG. 2 shows the mass spectrometry profile of a crude sample containing \*\*\*urease\*\*\* prepared in accordance with one embodiment of the invention;

FIG. 3 illustrates the affinity purification profiles of \*\*\*urease\*\*\* during various stages of the purification process, in accordance with another embodiment of the invention;

FIG. 4 illustrates the purification of E-coil-alpha hEGFR IgG conjugate by a protein-G column prepared according to one embodiment of the invention; and

FIG. 5 shows the antibody titer of purified E-coil-alpha hEGFR IgG conjugate prepared according to one embodiment of the invention as determined by immobilized K-coil ELISA.

OF 7 IFIPAT COPYRIGHT 2006 IFI on STN

AB A pharmaceutical composition and method for use in inhibiting growth of cancer cells in a mammalian subject are disclosed. The composition includes a \*\*\*urease\*\*\* enzyme, and associated therewith, a chemical entity effective to enhance the delivery of the enzyme to cancer cells, when the composition is administered to the subject. Also disclosed are a method of enhancing the effectiveness of weakly basic anti-tumor compounds, a method assessing the presence, size or condition a solid tumor in a subject, and a gene therapy composition for treating a cancer in a subject.

L10 ANSWER 3 OF 7 IFIPAT COPYRIGHT 2006 IFI on STN  
AN 04165588 IFIPAT:IFIUDB:IFICDB <<LOGINID::20060522>>  
TI METHODS FOR MEASURING IN VIVO CYTOKINE PRODUCTION; THROUGH IN VIVO CAPTURE BY LABELED BINDING REAGENTS FOLLOWED BY IN VITRO MEASUREMENT OF SERUM LEVELS; FOR MONITORING HUMAN/ANIMAL IMMUNOLOGICAL FUNCTION; SOLID PHASE SYNTHESIS

INF Finkelman; Fred D., Cincinnati, OH, US  
Morris; Suzanne C., Mason, OH, US  
IN Finkelman Fred D; Morris Suzanne C  
PAF University of Cincinnati, Cincinnati, OH, US  
PA Cincinnati, University of (17560)

US 6824986 B UPAB: 20041223  
NOVELTY - Measuring production of secreted target analyte of interest in human or animal by injecting human or animal with labeled neutralizing antibody, allowing moiety to circulate through human or animal for defined period of time, obtaining sample from human or animal, combining sample with capture moiety, incubating assay mixture to allow capture moiety to bind to conjugate and form complexes in mixture, detecting amount of complexes.

EXNAM	Chin, Christopher L	
EXNAM	Gabel, Gallene R	
AG	Frost Brown Todd LLC	
PI	US 6824986	B1 20041130
AI	US 1998-167088	19981006
XPD	6 Oct 2018	
PRAI	US 1997-61167P	19971006 (Provisional)
FI	US 6824986	20041130
DD	Utility; Granted Patent - Utility, no Pre-Grant Publication	
FTS	CHEMICAL	
GRANTED		
OS	CA 142:30001	
GOVI	This invention was made in part with Government support under Grant Nos. R01A135987 and R01A137180 awarded by the National Institutes of Health.	
PA	The Government may have certain rights in this invention.	
PARN	This application is based on U.S. Provisional Patent Application Ser. No. 60/7061,167, Finkelman and Morris, filed Oct. 6, 1997.	
MEN	009508	MFN: 0021
CLM		
30		

OF 7 IIFPAT COPYRIGHT 2006 IFI on STN

The present invention involves techniques for evaluating *in vivo* cytokine production through the *in vivo* capture of secreting cytokines by labeled cytokine-binding reagents, followed by *in vitro* measurement of serum levels of captured cytokine. The methods of the present invention make use of the ability of a neutralizing antibody to a cytokine, when injected into a person or experimental animal, to bind that cytokine and prevent its catabolism, excretion, or binding to a cytokine receptor. This causes the cytokine, which may normally have a very short *in vivo* half life, to accumulate *in vivo* as a cytokine/anti-cytokine antibody complex. If the anti-cytokine antibody is either labeled with a molecule that can be bound by another molecule (e.g.: biotin, which is bound by avidin or streptavidin), or is itself capable of being bound by another molecule (e.g.: a rat anti-cytokine antibody could be bound by an anti-rat immunoglobulin antibody), and the cytokine can also be bound by an antibody that recognizes a site distinct on the cytokine molecule from the site bound by the injected, neutralizing antibody, then the concentration of the cytokine/ anti-cytokine complex in serum or other biological fluid can easily be assayed by a modified ELISA. This assay may be used with target analytes other than cytokines, which may include hormones, drugs or other analytes in a human or animal. The target analyte is preferably a macromolecule, more preferably a protein, and most preferably a cytokine.

L10 ANSWER 4 OF 7 WPIDS COPYRIGHT 2006 THE THOMSON CORP on STN  
AN 2004-831010 [82] WPIDS <<LOGINID::20060522>>

DNN N204-056433 DNC G2004-289785  
DNN N204-056433 DNC G2004-289785  
TTI Measuring production of secreted cytokines in human or animal by injecting human or animal with labeled \*\*targeting\*\* \*\*molecy\*\*  
allowing molecy to circulate through human or animal, and detecting amount of complexes in obtained sample.

[illegible]

1110 ANSWER 5 OF 7 WPIDS COPYRIGHT 2006 THE THOMSON CORP ON STN  
2004-180269 [17] WPIDS <LOGINID:20060522>>  
DNC C2004-071231  
TTTT Composition useful for inhibiting growth of cancer cells in mammalian  
subject, comprising \*\*\*\*\* enzyme in a carrier.  
A96 B04 D16  
DC CHAO, H; DICKSTEIN, J; DOCHERTY, J; MCELROY, J; SEGAL, D; WONG, W; WONG, W  
IN X  
PA (CHAO-I) CHAO H; (DICK-I) DICKSTEIN J; (DOCH-I) DOCHERTY J; (MCEL-I)  
MCELROY J; (SEGA-I) SEGAL D; (WONG-I) WONG W; (HELI-N) HELIX BIOPHARMA  
CORP  
CYC 106

PI WO 2004009112 A1 20040129 (200417)\* EN 100  
 RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS  
 LU MC MW NZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW  
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CZ DE DK  
 DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR  
 KZ LC LK LR LS LT LU LV MA MD MG MN MW MX MZ NI NO NZ OM PG PH  
 PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG UZ VC VN  
 YU ZA ZM ZW  
 US 2004115186 A1 20040617 (200440)  
 AU 2003250658 A1 20040209 (200450)  
 BR 2003012664 A1 20050503 (200531)  
 EP 1530482 A1 20050518 (200533) EN  
 R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU LV  
 MC MK NL PT RO SE SI SK TR  
 NO 2005000793 A1 20050418 (200535)  
 US 2005196391 A1 20050908 (200559)  
 JP 2006501196 W 20060112 (200604) 67  
 CN 1681328 A1 20051012 (200612)  
 MX 2005000778 A1 20050901 (200617)  
 WO 2004009112 A1 WO 2003-CA1061 20030716; US 2004115186 A1 Provisional US  
 2002-397244P 20020718; US 2003-621833 20030716; AU 2003250658 A1 AU  
 2003-250658 20030716; BR 2003012664 A BR 2003-764850 20030716, WO  
 2003-CA1061 20030716; EP 1530482 A1 EP 2003-764850 20030716, WO  
 2003-CA1061 20030716; NO 2005000793 A WO 2003-CA1061 20030716, NO 2005-793  
 20050215; US 2005196391 A1 Provisional US 2002-397244P 20020718, CIP of US  
 2003-621833 20030716, US 2005-46271 20050127; JP 2006501196 W WO  
 2003-CA1061 20030716, JP 2004-522053 20030716; CN 1681328 A CN 2003-822307  
 20030716; MX 2005000778 A1 WO 2003-CA1061 20030716, MX 2005-778 20050118  
 AU 2003250658 A1 Based on WO 2004009112; BR 2003012664 A Based on WO  
 2004009112; EP 1530482 A1 Based on WO 2004009112; JP 2006501196 W Based on  
 WO 2004009112; MX 2005000778 A1 Based on WO 2004009112  
 PRAI US 2002-397244P 20020718; US 2003-621833 20030716;  
 US 2005-46271 20050127  
 AB WO2004009112 A UPAB: 20040310  
 NOVELTY - A composition (I) comprising an \*\*\*urease\*\*\* enzyme in a  
 carrier for use in inhibiting growth of cancer cells in a mammalian  
 subject.  
 DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:  
 (1) use of \*\*\*urease\*\*\* enzyme in the manufacture of a medicament  
 for treating or diagnosing cancer in a mammalian subject; and  
 (2) a gene therapy composition (II) for use in inhibiting growth of  
 cancer cells in a mammalian subject, comprising a targeting vector  
 effective, when administered to the subject, of selectively transfecting  
 cancer cells, and carried in the vector, a recombinant nucleic acid  
 sequence effective to produce a \*\*\*urease\*\*\* mRNA in transfected  
 cancer cells.  
 ACTIVITY - Cytostatic.  
 MECHANISM OF ACTION - Inhibitor of growth of cancer cells; Gene  
 therapy (claimed).  
 Athymic nu/nu female mice with human mammary gland adenocarcinoma  
 xenografts were used for testing. Animals selected were generally 5-7  
 weeks of age, and their body weights at treatment commencement ranged from  
 approximately 15-28 grams. MCF-cells (0.8 multiply 106) were used to  
 generate the xenografts. The cells were grown in modified eagle medium  
 (MEM) media supplemented with Penicillin/Streptomycin 5000 U/ml,  
 L-glutamine 200 mM, sodium pyruvate, non-essential amino acids, vitamins,  
 and 10% fetal bovine serum (FBS). The cell incubator was maintained with

5% CO<sub>2</sub>, 37.50 deg. C, and 80% humidity. The cells were harvested with  
 0.25% trypsin-0.03% EDTA solution. Approximately 1 multiply 106 cells in  
 100 micro l was injected subcutaneously to the right flank of each mouse.  
 Tumor growth was allowed to proceed for about 6-8 days following the size  
 of the tumor to reach at least 2-4 mm in diameter. Doses of \*\*\*urease\*\*\*  
 enzymes were administered by intratumor injection. The dose volume for  
 each animal was 50 micro l. Each solid tumor was injected with the given  
 dose of test article in a fanning fashion. Tumor volumes were taken by  
 external caliper measurements. Body weights were taken at the start of the  
 trial and at time of sacrifice. Results, showed that tumors were not  
 perceptible 24 hours following treatment.  
 USE - (I) is useful for inhibiting growth of cancer cells such as  
 solid tumor. \*\*\*urease\*\*\* enzyme is useful manufacture of a medicament  
 for treating or diagnosing cancer in a mammalian subject. The medicament  
 is useful for treating a solid tumor in a mammalian subject, for treating  
 a solid tumor in a subject who is being treated with a weakly basic  
 anti-tumor compound whose effectiveness is reduced by a higher  
 intracellular/lower extracellular pH gradient in a solid tumor, and for  
 generating diagnostic information about the pH within a solid tumor region  
 in a subject. (II) is useful for inhibiting growth of cancer cells in a  
 mammalian subject (claimed).  
 Dwg. 0/5

L10 ANSWER 6 OF 7 BIOTECHDS COPYRIGHT 2006 THE THOMSON CORP. on STN  
 AN 2004-09515 BIOTECHDS <LOGINID::20060522>  
 TI Composition useful for inhibiting growth of cancer cells in mammalian  
 subject, comprising \*\*\*urease\*\*\* enzyme in a carrier;  
 enzyme composition and antibody for use in disease therapy and gene  
 therapy  
 AU CHAO H; WONG W; SEGAL D; MCELROY J; DOCHERTY J; DICKSTEIN J  
 PA HELIX BIOPHARMA CORP  
 PI WO 2004009112 29 Jan 2004  
 AI WO 2003-CA1061 16 Jul 2003  
 PRAI US 2002-397244 18 Jul 2002; US 2002-397244 18 Jul 2002  
 DT Patent  
 OS English  
 AB WPI: 2004-180269 [17]  
 DERWENT ABSTRACT:  
 NOVELTY - A composition (I) comprising an \*\*\*urease\*\*\* enzyme in a  
 carrier for use in inhibiting growth of cancer cells in a mammalian  
 subject.  
 DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for: (1)  
 use of \*\*\*urease\*\*\* enzyme in the manufacture of a medicament for  
 treating or diagnosing cancer in a mammalian subject; and (2) a gene  
 therapy composition (II) for use in inhibiting growth of cancer cells in  
 a mammalian subject, comprising a targeting vector effective, when  
 administered to the subject, of selectively transfecting cancer cells,  
 and carried in the vector, a recombinant nucleic acid sequence effective  
 to produce a \*\*\*urease\*\*\* mRNA in transfected cancer cells.  
 WIDER DISCLOSURE - A kit for use in inhibiting growth of cancer  
 cells in a mammalian subject, is also disclosed.  
 BIOTECHNOLOGY - Preferred Composition: (I) includes a chemical  
 entity effective to enhance the delivery of the enzyme to cancer cells,  
 when the composition is administered to the subject. The chemical entity  
 includes a hydrophilic polymer, conjugated to \*\*\*urease\*\*\*, and is  
 chosen from polyethylene glycol, polyvinylpyrrolidone,  
 polyvinylmethylether, polyhydroxypropyl methacrylamide, polyhydroxypropyl



methacrylate, polyhydroxyethyl acrylate, polymethacrylamide, polydimethylacrylamide, polymethylloxazoline, polyethylloxazoline, polyhydroxyloxazoline, polyhydroxypropyloxazoline, polyaspartamide, and hydrophilic cellulose derivatives, where the chemical entity is present in an amount to extend the blood circulation time or reduce the antigenicity of the composition relative to native \*\*\*urease\*\*\*. The hydrophilic polymer is polyethylene glycol having a molecular weight between 1000 and 10000 daltons. The chemical entity is a

\*\*\*targeting\*\*\* \*\*\*moiety\*\*\* attached to the \*\*\*urease\*\*\* and chosen from an anti-tumor antigen antibody, anti-hCG antibody, and a ligand capable of binding specifically to cancer-cell surface receptors. The \*\*\*targeting\*\*\* \*\*\*moiety\*\*\* is a polypeptide, and (I) is a fusion protein of the \*\*\*targeting\*\*\* \*\*\*moiety\*\*\*, and

\*\*\*urease\*\*\* enzyme. The \*\*\*urease\*\*\* includes, at its C- or N-terminus, a first coil-forming peptide with a selected charge and an ability to interact with a second, oppositely charged coil-forming peptide to form a stable alpha-helical coiled-coil heterodimer, and the chemical entity includes a \*\*\*targeting\*\*\* \*\*\*moiety\*\*\*, which includes the second coil-forming peptide. The chemical entity includes vesicles having \*\*\*urease\*\*\* enzyme in entrapped form. The vesicles are liposomes which are long-circulating by virtue of an exterior coating of polyethylene glycol chains, and sized to extravasate into tumor regions, when (I) is administered intravenously. The vesicles are liposomes having surface bound targeting moieties chosen from an anti-tumor antigen antibody, anti-hCG antibody, and ligands capable of binding specifically to cancer-cell surface receptors. The chemical entity includes a \*\*\*urease\*\*\* inhibitor associated with it, in an amount sufficient to inhibit the activity of the enzyme. The \*\*\*urease\*\*\* is a plant or bacterial \*\*\*urease\*\*\*. (I) further comprises an agent chosen from urea, an active anti-tumor agent and an imaging agent. (I) further includes vesicles containing the \*\*\*urease\*\*\* and agent in entrapped form. (I) further comprises a weakly basic anti-tumor compound whose effectiveness is reduced by a higher intracellular/lower extracellular pH gradient in a solid tumor. The anti-tumor compound is chosen from doxorubicin, daunorubicin, mitoxanthrone, epirubicin, mitomycin, bleomycin, vinca alkaloids such as vinblastine and vincristine, alkylating agents such as cyclophosphamide and methlorethane hydrochloride, and antineoplastic purine and pyrimidine derivatives. In (II), the vector is an adenovirus. The sequence encodes \*\*\*urease\*\*\* and a secretory leader sequence effective to promoter secretion of the \*\*\*urease\*\*\* from the transfected cancer cells.

ACTIVITY - Cytostatic.

MECHANISM OF ACTION - Inhibitor of growth of cancer cells; Gene therapy (claimed). Achymic nu/nu female mice with human mammary gland adenocarcinoma xenografts were used for testing. Animals selected were generally 5-7 weeks of age, and their body weights at treatment commencement ranged from approximately 15-28 grams. MCF-cells (0.8x10<sup>6</sup>) were used to generate the xenografts. The cells were grown in modified eagle medium (MEM) media supplemented with Penicillin/Streptomycin 5000 U/ml, L-glutamine 200 mM, sodium pyruvate, non-essential amino acids, vitamins, and 10% fetal bovine serum (FBS). The cell incubator was maintained with 5% CO<sub>2</sub>, 37.50 degrees Centigrade, and 80% humidity. The cells were harvested with 0.25% trypsin-0.03% EDTA solution. Approximately 1x10<sup>6</sup> cells in 100 microl was injected subcutaneously to the right flank of each mouse. Tumor growth was allowed to proceed for about 6-8 days allowing the size of the tumor to reach at least 2-4 mm in

diameter. Doses of \*\*\*urease\*\*\* enzymes were administered by intratumor injection. The dose volume for each animal was 50 microl. Each solid tumor was injected with the given dose of test article in a fanning fashion. Tumor volumes were taken by external caliper measurements. Body weights were taken at the start of the trial and at time of sacrifice. Results, showed that tumors were not perceptible 24 hours following treatment.

USE - (I) is useful for inhibiting growth of cancer cells such as solid tumor. \*\*\*Urease\*\*\* enzyme is useful manufacture of a medicament for treating or diagnosing cancer in a mammalian subject. The medicament is useful for treating a solid tumor in a mammalian subject, for treating a solid tumor in a subject who is being treated with a weakly basic anti-tumor compound whose effectiveness is reduced by a higher intracellular/lower extracellular pH gradient in a solid tumor, and for generating diagnostic information about the pH within a solid tumor region in a subject. (II) is useful for inhibiting growth of cancer cells in a mammalian subject (claimed).

ADMINISTRATION - (I) is administered by parenteral, enteral, transepithelial, transmucosal, transdermal, and/or surgical in dosages ranging from 0.1-1000 international units. (100 pages)

ANSWER 7 OF 7 CAPLUS COPYRIGHT 2006 ACS on STN  
AN 2005:985203 CAPLUS <LOGINID::20060522>  
DN 143:260354  
TI Method and composition using a weakly basic anticancer compound and \*\*\*urease\*\*\* for inhibiting cancer cell growth  
IN Segal, Donald; McElroy, Jerry; Chao, Heman; Wong, Wah Y.; Docherty, John; Dickstein, Jodi  
SA Helix Biopharma Corporation, Can.  
PO U.S. Pat. Appl. Publ., 30 pp., Cont.-in-part of U.S. Ser. No. 621,833.  
CODEN: USXXCO  
DT Patent  
LA English  
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2005196391	A1	20050908	US 2005-46271	20050127
US 2004115186	A1	20040617	US 2003-621833	20030716
PRAI US 2002-397244P	P	20020718		
US 2003-621833	A2	20030716		

AB Improvements in methods of treating cancer with weakly basic anticancer compds. are provided. In one aspect, the invention provides an improvement in a method of treating cancer cells whose extracellular environment contains 1-8 mM urea, by exposing the cells to a weakly basic anticancer compd. which is effective in inhibiting the growth of the cells. The improvement includes (a) exposing the cells to a \*\*\*urease\*\*\* enzyme compn. and, (b) by step (a), reducing the amt. of anticancer compd. required to produce a given extent of inhibition in the growth of the cells when the cells are exposed to the anticancer agent. Methods of potentiating the specific therapeutic activity of a weakly basic anticancer compd. in the treatment of a given mammalian cancer which is responsive to the compd. are provided as are pharmaceutical compns. for use in i.v. administration to a subject are also provided.

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FULL ESTIMATED COST	41.81	103.31
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
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ENTERED AT 12:47:08 ON 22 MAY 2006		

65 FILES IN THE FILE LIST IN STNINDEX

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INDEX 'ADISCTI, ADISINISIGHT, ADISNEWS, AGRICOLA, ANABSTR, ANTE, AQUALINE,  
AQUASCI, BANG, BIOSIS, BIOTECHS, BIOTECHNO, CAB, CAPLUS,  
CEABA-VTB, CIN, CONSCIT, CROPB, CROPO, DFEF, DDFU, DEENE, DISSABS, DRUGB,  
DRUMONOGZ, DRUGU, ENBAL, ENBASE, ... ENTERED AT 12:40:09 ON 22 MAY 2006  
SEA URASE (10A) CHEMOTHERAP?

### SEA UREASE (10A) CHEMOTHERAPY?

FILE BIOSIS  
FILE CAPLUS  
FILE DGENE  
FILE DRUGJ  
FILE EMBASE  
FILE JICST-EPHUS  
FILE MEDLINE  
FILE PASCAL  
FILE SCISEARCH  
FILE TOXCENTER  
FILE VETU

QUE UREASE (10A) CHEMOTHERAPY?

SEA L1 (P) TARGET?

\* FILE ADSNEWS  
\* FILE ANTE  
\* FILE AQUALINE  
\* FILE BIOENG  
\* FILE BIOTECHABS  
\* FILE BIOTECHS  
\* FILE BIOTECHNO  
\* FILE CEBA-VTB  
\* FILE CIN  
\* FILE DGENE  
\* FILE EBI0BASE  
\* FILE FOMAD  
\* FILE FOREGE  
\* FILE FROSTII  
\* FILE FSTA  
\* FILE KOSMET  
\* FILE NTIS  
\* FILE NUTRACUT  
\* FILE PASCAL  
\* FILE PHARMAML  
\* FILE WATER

QUE L1 (P) TARGET?

SEA L1  
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FILE BIOSIS  
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FILE DCENE  
FILE DRUGU  
FILE EMBASE  
FILE JICST-EPLUS  
FILE MEDLINE  
FILE PASCAL  
FILE SCISEARCH  
FILE TOXCENTER  
FILE VETU

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0\* FILE AQUALINE  
1\* FILE BIOENG  
38 FILE BIOSIS  
0\* FILE BIOTECHABS

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112.46

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SESSION WILL BE HELD FOR 60 MINUTES  
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L3 QUE L1  
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27 S L3  
20 DUP REM L4 (7 DUPLICATES REMOVED)  
8 S L5 AND TARGET?

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AQUASCI, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS, BIOTECHNO, CABA, CAPLUS,  
CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DGENE, DISSABS, DRUGB,  
DRUGMONOG2, DRUGU, EMBAL, EMBASE, ...' ENTERED AT 12:43:38 ON 22 MAY 2006

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CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DISSABS, DRUGB,  
DRUGMONOG2, DRUGU, EMBAL, EMBASE, ESBIOBASE, ...' ENTERED AT 12:43:55 ON  
22 MAY 2006

SEA (CHEMOTHERAP? (10A) TARGET?) AND UREASE

L7 1 FILE CAPLUS  
-----  
QUE (CHEMOTHERAP? (10A) TARGET?) AND UREASE  
-----  
SEA (TARGETING (W) MOIETY) AND UREASE  
-----

1 FILE BIOTECHABS  
1 FILE BIOTECHDS  
1 FILE CAPLUS  
3 FILE IFIPAT  
2 FILE WPIDS  
2 FILE WPINDEX  
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QUE (TARGETING (W) MOIETY) AND UREASE  
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L11 7 S L8  
0 S L10 NOT L6

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CEABA-VTB, CIN, CONFSCI, CROPB, CROPU, DDFB, DDFU, DISSABS, DRUGB,  
DRUGMONOG2, DRUGU, EMBAL, EMBASE, ESBIOBASE, ...' ENTERED AT 12:47:08 ON  
22 MAY 2006

SEA UREASE (10A) FUSION

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0\* FILE ADISNEWS  
0\* FILE ANTE  
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1 FILE ADISINSIGHT